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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,723	11/24/2003	Wataru Kubo	P24128	1839

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EXAMINER
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LAMB, CHRISTOPHER RAY

ART UNIT	PAPER NUMBER
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2627

DATE MAILED: 07/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/718,723	<b>Applicant(s)</b> KUBO, WATARU	
	<b>Examiner</b> Christopher R. Lamb	<b>Art Unit</b> 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-6 is/are rejected.
- 7) ☒ Claim(s) 2 and 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/12/04</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Claim Objections*

2. Claims 1-5 objected to because of the following informalities:

Regarding claim 1, it is written as a run-on sentence, without appropriate punctuation and/or phrases to separate claimed elements, making it difficult to understand. Also, each element or step of the claim should be separated by a line indentation for clarity.

For the purposes of the rejections which follow, the Examiner has interpreted the individual elements of claim 1 as follows:

An objective lens for an optical recording/reproducing device which records/reproduces information to/from a recording medium utilizing holography,  
said objective lens converging a collimated beam in the vicinity of a recording surface of the recording medium to record/reproduce the information,  
said objective lens comprising:  
a single lens element having an incident surface to which the collimated beam enters and an exit surface being opposite to said incident surface;  
said incident surface and said exit surface being configured to be rotationally symmetrical aspherical surfaces;  
at least within an effective diameter of said single lens element said incident surface and said exit surface being symmetrical with respect to a plane perpendicular to an optical axis of said single lens element and having the same shape;  
said single lens element having positive refractive power.

As claims 2-5 are dependent on claim 1, they are similarly objected to.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4, and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimano et al. (US 5,889,748).

Regarding claim 1:

Shimano discloses an objective lens (Fig. 1A, 1B) for an optical recording/reproducing device which records/reproduces information to/from a recording medium, said objective lens converging a collimated beam in the vicinity of a recording surface of the recording medium to record/reproduce the information (visible in Fig. 1A, 1B),

said objective lens comprising:

a single lens element having an incident surface to which the collimated beam enters and an exit surface being opposite to said incident surface (apparent in Fig. 1A, 1B),

said incident surface and said exit surface being configured to be rotationally symmetrical aspherical surfaces (that they are rotationally symmetrical is apparent from Fig. 1A, 1B; that they are aspherical is disclosed in, for example, column 16, lines 5-25),

at least within an effective diameter of said single lens element said incident surface and said exit surface being symmetrical with respect to a plane perpendicular to

an optical axis of said single lens element and having the same shape (apparent from Fig. 1A, 1B),

said single lens element having positive refractive power (inherent).

Note that Shimano does not disclose that the recording medium utilizes holography, but because this is merely an intended use and part of the preamble, it has no patentable weight.

Regarding claim 4:

This is inherent to Shimano. The claimed elements are merely recitations of general properties of an ideal lens; thus any lens with sufficiently small aberration will meet the claimed elements within a reasonable margin of error (note that the Applicant discloses such error in, for example, Fig. 13).

Regarding claim 5:

In Shimano, with regard to each of a beam entering from said incident surface and a beam entering from said exit surface, said objective lens has wavefront aberration performance less than or equal to Marechal criterion within a maximum field angle range (column 6, lines 30-60).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimano (US 5,889,748).

Shimano discloses an objective lens as discussed above.

Shimano does not disclose “wherein half of the maximum field angle is larger than or equal to 3°.”

However, Shimano does discuss the aberration when the entering light is not completely parallel (when it enters along “an oblique direction”: column 16, line 65 to column 17, line 15). Shimano shows that the aberration still meets the Marechal criterion in these circumstances. Thus even though Shimano does not use the term “field angle”, or disclose the 3° requirement, Shimano does discuss the essential concept: that the aberration must be kept low even for non-parallel rays.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein half of the maximum field angle is larger than or equal to 3°, since it has been held that discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

***Allowable Subject Matter***

7. Claims 2-3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 2:

The closest prior art of record, Shimano et al., discloses the claimed formula (1) in column 16, lines 5-25.

However, Shimano does not teach or suggest the claimed limitations on the derivative and second derivative of the formula.

Regarding claim 3:

It would be allowable due to its dependence on claim 2, were claim 2 rewritten to overcome the objections above.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Curtis et al. (US 6,847,498) and Hoogland et al. (US 6,885,510) both disclose replacing Fourier transform lens systems with single lenses for holographic reading and recording.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Lamb whose telephone number is (572) 272-5264. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CRL 7/25/06

  
THANG W. TRAN  
PRIMARY EXAMINER